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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/764,040

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Kris Kelkar

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EXAMINER

HA, DAC V

ART UNIT

PAPER NUMBER

2611

MAIL DATE

DELIVERY MODE

05/30/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

58

Office Action Summary	Application No.		Applicant(s)	
	10/764,040		KELKAR, KRIS	
	Examiner		Art Unit	
	Dac V. Ha		2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-50 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 23-28 and 44-50 is/are allowed.
- 6) ☒ Claim(s) 1-13, 15-22, 29-36 and 38-43 is/are rejected.
- 7) ☒ Claim(s) 14, 37 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claims 36-43 are objected to because of the following informalities:

Claim 36 recites "said beamformer" on line 7. This should be changed accordingly since "beaformer" is first mentioned to avoid potential antecedent problem.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claim 29 is rejected under 35 U.S.C. 102(e) as being anticipated by Hoppenstein (US 2004/0204109).

Regarding claim 29, Hoppenstein discloses:

"converting the frequency of data-carrying signals that are associated with each subarray of an array of antennas" (Fig. 3, element 60; para. 0028);

"for each subarray, processing respective data-carrying signals to correspond to a subarray antenna beam of that subarray" (para. 0025, 0028);

"for said array, processing respective data-carrying signals to correspond to an array antenna beam of said array;

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processing of said data-carrying signals thereby realized progressively to reduce computational complexity of said system" (Fig. 3; para. 0025---28; Fig. 4, para. 0029-0031).

4. Claim 36 is rejected under 35 U.S.C. 102(e) as being anticipated by Kuwahara et al. (US 6,597,678) (hereafter Kuwahara).

Regarding claim 36, Kuwahara discloses

"converting the frequency of current data-carrying signals that are associated with an array of antennas" (Fig. 2, element 101; col. 3, lines 66-67);

"routing at least part of said current data-carrying signals through at least one delay path to provide delayed data-carrying signals to said beamformer" (Fig. 2, elements 106, 110; col. 4, line 65 to col. 5, line 61);

"processing said current data-carrying signals and said delayed data-carrying signals to correspond to an antenna beam of said array" (Fig. 2, elements 103, 104; col. 3, line 33 to col. 6, line 13).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. **Claims 1-9, 30-35** are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoppenstein.

Regarding claim 1, see claim 29 above. Hoppenstein differs from the claimed invention in that Hoppenstein doesn't teach "a plurality of subarray beamformer". Hoppenstein, however, processes signal for subarray utilizing a beamformer DSP (Fig. 2, element 62). A person of ordinary skill in the art would have realized that such claimed subject matter would have been obvious, at least, from an operation standpoint based on Hoppenstein. That is, Hoppenstein's beamformer can provide a more robust processing of the signal.

Regarding claim 3, Hoppenstein further discloses "a modem ... array beamformer" in Fig. 2, element 60.

Regarding claims 2, 4, 5, 6, similar analogy with that of claim 1, these claimed subject matter would have been easily realized by one skilled in the art.

Regarding claims 7-9, Hoppenstein further discloses these claimed subject matter in Fig. 2, element 60.

Regarding claims 30, 32-33, see claims 2, 4-6.

Regarding claim, 31, 34-35, see claim 9.

7. **Claims 10-13, 15-22, 38-43**, are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuwahara.

Regarding claim 10, see claim 36 above. Further, the claimed subject matter "a processor" would have been easily realized by one skilled in the art based on Kuwahara.

Regarding claims 11-13, 15-19, similar analogy with that of claim 10, these claimed subject matter would have been easily realized by one skilled in the art.

Regarding claims 20-22, Kuwahara further discloses these claimed subject matter in Fig. 2, element 101; col. 3, lines 66-67 and col. 9, lines 6-7.

Regarding claims 38, 40, 41, see claims 15-19.

Regarding claims 39, 42-43, see claims 20-22.

Allowable Subject Matter

8. Claims 23-28, 44-50 are allowed.
9. Claims 14, 37 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Yoshida (US 7,106,785) discloses Adaptive Antenna Reception Apparatus With Weight Updated Adaptively.


Nakagawa (US 6,466,166) discloses Multi-Beam Receiving Apparatus.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dac V. Ha whose telephone number is 571-272-3040. The examiner can normally be reached on 5/4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on 571-272-2988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, appearing to read 'Dac V. Ha', with a long horizontal line extending from the end of the signature.

Dac V. Ha
Primary Examiner
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